REMARKS

Claims 1-2 are pending in the present application. The Office Action and cited references have been considered. Favorable reconsideration is respectfully requested.

Claims 1-2 were rejected under 35 U.S.C. §103 as being unpatentable over Simeone (U.S. Patent No. 5,379,966) in view of Busse (U.S. Patent Application Publication No. 2006/0284050). These rejections are respectfully traversed for the following reasons.

Claim 1 recites a system comprising a synchronized network of at least three search and track radars and associated processing means and communication channel, the radars being configured to detect and track at least one target, and in response to detected at least one target, at least one interceptor is launched towards the at least one target. The radars are configured to measure and track the at least one target and the at least one interceptor and the target and interceptor ranges are accurately measured by the at least three radars in the synchronized network, giving rise to synchronized accurate range measurements. The synchronized measurements are combined by range triangulation to provide accurate target and interceptor position measurements irrespective of the angular measurement accuracy of each radar. The processing means are configured to utilize the measurements to calculate interceptor maneuvers required to overcome errors and bring the interceptor close to a target. The maneuver commands are transmitted to the interceptor using the communication

channel, and the interceptor is equipped with kill mechanism designed to destroy a target warhead when the interceptor approaches the target.

On page 4 of the Notification, the Examiner maintained that:

> Busse is combined to teach the idea of using the sensor already taught in Simeone in a network of sensors to triangulate on the target using the tracking data in Simeone, which includes the range of the target. Therefore, the combination of Simeone and Busse teaches the claimed range triangulation. Further, both angular triangulation or range triangulation techniques are very well known methods and are also known to be used for tracking targets.

Applicant respectfully submits that this conclusion is incorrect and unsupported by the teachings of the references, as they would be understood by one of ordinary skill in the art.

Applicant respectfully submits that one of main distinguishing feature of the invention recited in Claim 1 over the cited prior art, is the utilization of three or more radars, which are capable of measuring accurate ranges to the target, however they have degraded ability for angular measurement accuracy (see lines 8 - 12 of Claim 1, which state "the radars are configured to measure and track the at least one target and the at least one interceptor and the target and interceptor ***ranges are accurately measured by the at least three radars*** in the synchronized network, giving rise to synchronized accurate range measurements . . . ***irrespective of the angular measurement accuracy of each radar***"). These radars are therefore considerably less costly than radars that are also capable of accurate angular measurement. In addition, Claim 1 recites that the specified accurate range measurements are combined using range triangulation in order to provide accurate target and interceptor position

measurements (Claim 1, lines 11 and 12, which state "the synchronized measurements are combined by range triangulation to provide accurate target and interceptor position measurements"). In the Official Action, the Examiner asserted that the sensor of Simeone could be incorporated into the network of sensors taught by Busse, therefore arriving to the claimed invention. Applicants respectfully traverse this allegation.

As readily arises from Simeone (see for instance Fig. 1), a single optical sensor (12) is utilized to determine accurate angular data of the interceptors 28 and 30, as well as targets 32 and 34. In addition, the system of Simone employs an accurate range finder (transmitter 22 [pulsed CO2 Transverse Excited Atmospheric Laser – see Col. 4, lines 14-15] and range receiver 24) in order to determine accurate range to targets 32 and 34 ("the fire control computer 18 then computes the ranges from the length of time required for the pulse to be returned" at col. 4, lines 36-38).

Accordingly, the combination of optical accurate sensor 12 and range finder (22 and 24) are capable of measuring both range and angle in high accuracy and unlike the claimed invention, the sensor 12 of Simeone is not characterized by "degraded" angular measurement accuracy and therefore sensor 12 would bear a high price tag.

As already discussed in Applicants' previous reply (and not traversed by the Examiner), Busse employs an array of optical sensors which measure accurate angles and employ angular triangulation, as can be seen from the following discussion.

The Examiner refers to the abstract, Fig. 19 and paragraph [38] of Busse. As readily arises from the discussion in paragraph [38], "*[t]he observations/detection of*

threat missil 40 by optical sensors is represented as line of bearing that is a relatable angle/angle position of the event". Accordingly, the optical sensors measure azimuth and elevation angles and the triangulation of the two or more sensors discussed in paragraph [0038] *("through triangulation of two or more optical sensors"*) is angular triangulation. Utilizing the angular triangulation necessarily entails that the accurate position determination is dependent on the angular accuracy of the sensor, contrary to the requirements of Claim 1 ("the synchronized measurements are combined by range triangulation to provide accurate target and interceptor position measurements irrespective of the angular measurement accuracy of each radar").

Bearing this discussion in mind, Applicants believe that the Examiner's assertion that *"Busse is combined to teach the idea of using the sensor already taught in Simeone in a network of sensors triangulate on the target, using the tracking data in Simeone which includes the range of the target",* has no adequate grounds.

In addition to the foregoing discussion, there are several reasons for contesting the Examiner's allegation.

First, the Simeone sensor employs accurate angular measurement capability and if integrated into the network of Busse, will still employ expensive sensors capable of accurate angular measurement capability. This is in contrast to the claimed invention, which employs radars of degraded angular measurement accuracy.

Second, Simeone does not require any form of triangulation, since it employs an accurate angular measurement sensor and distinct accurate range finder. Busse utilizes angular triangulation, and does not suggest even remotely utilization of

range data of any kind including range data of the kind used in Simeone. In addition, neither Simeone nor Busse suggest, even remotely, utilization of sensors for range triangulation as defined in Claim 1 of the invention.

Accordingly, neither Simeone nor Busse, and therefore, not even the combination thereof, teach utilizing at least the following claimed features: (i) utilizing "degraded radars", *i.e.*, having accurate range measurements and degraded angular measurements characteristics; and (ii) that the data obtained from the radar is subject to range triangulation for determining accurate position of the target and the interceptor.

The Examiner further maintained that range triangulation *per se* is known for a long time. Applicants agree that the concept of range triangulation is known *per se* and do not seek for a monopoly of utilizing this concept. However, utilizing the specified concept for interception purposes utilizing degraded radars of the kind specified above, and combining the data generated by these radars, utilizing range triangulation for the purposes of determining accurate positions of the target and the interceptor, has not been suggested before.

In light of the foregoing discussion, Applicants believe that the rejection under 35 U.S.C. §103(a) should be withdrawn and accordingly claim 1 should be deemed patentable over the cited prior art.

In view of the above amendment and remarks, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejections of record. Applicant submits that the application is in condition for allowance and early notice to the effect is most earnestly solicited.

If the Examiner has any questions, he is invited to contact the undersigned at 202-628-5197.

Respectfully submitted,

BROWDY AND NEIMARK, P.L.L.C.
Attorneys for Applicant(s)

By /Ronni S. Jillions/
Ronni S. Jillions
Registration No. 31,979

RSJ:me
Telephone No.: (202) 628-5197
Facsimile No.: (202) 737-3528
G:\BN\C\cohn\golan8\pto\2009-07-17Amendment.doc